

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Robert P. Rouen	§	Art Unit:	3672
		§		
Serial No.:	10/711,820	§	Confirmation No.:	5819
		§		
Filed:	October 7, 2004	§	Examiner:	David L. Andrews
		§		
For:	Gas Lift Apparatus and	§	Atty. Dkt. No.:	SHL.0343US (68.0496)
	Method for Producing a Well	§		

**Mail Stop Appeal Brief-Patents**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

**APPEAL BRIEF PURSUANT TO 37 C.F.R § 41.37**

Sir:

The final rejection of claims 1-2, 4-11, 13-16, 18-20, and 22-31 is hereby appealed.

**I. REAL PARTY IN INTEREST**

The real party in interest is Schlumberger Technology Corporation.

**II. RELATED APPEALS AND INTERFERENCES**

None.

**III. STATUS OF THE CLAIMS**

Claims 1-2, 4-11, 13-16, 18-20, and 22-31 have been finally rejected and are the subject of this appeal.

Claims 3, 12, 17, and 21 have been cancelled.

#### **IV. STATUS OF AMENDMENTS**

A Request for Reconsideration was filed on May 7, 2010. An Advisory Action dated May 18, 2010 indicated that the Request for Reconsideration did not place the application in condition for allowance.

#### **V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

The following provides a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element. Note also that the cited passages are provided as examples, as other passages in the specification or drawings not cited may also be relevant to the corresponding claim elements.

Independent claim 1 recites a gas injection tool, comprising:

a tubular member (Figs. 1-6:60; Figs. 7B-7C:100) defining an axial bore therethrough, the axial bore adapted to deliver a gas into a wellbore proximate a perforation interval via orifices, wherein the gas injection tool is separate from and not in contact with a tubing string (Figs. 1-6:40; Figs. 7B-7C:150) for removing fluid from the wellbore (Spec., p. 3, ¶ [0014], ln. 1 - p. 4, ¶ [0016], ln. 19; p. 6, ¶ [0019], ln. 1-11); and

a plurality of gas lift valves (Figs. 1-6:62A, 62B, 62C; Figs. 7B-7C:102) attached to the tubular member, the gas lift valves adapted to regulate communication, via the corresponding orifices, from the axial bore of the tubular member to the wellbore at or below the perforation interval, and wherein the gas lift valves are configured to be opened in response to application of pressure applied by a flow of gas injected into the axial bore of the tubular member, wherein the gas is injected through each of the gas lift valves that is opened to assist production of fluid from the wellbore (Spec., p. 4, ¶ [0016], ln. 1 - p. 6, ¶ [0019], ln. 11).

Independent claim 7 recites a gas lift system for use in producing a well having a perforation interval, the system comprising:

a sealing mechanism (Figs. 1-6:30; Figs. 7B-7C:140) adapted to seal the well at a location above the perforation interval, the sealing mechanism having two ports therein (Spec., p. 4, ¶ [0016], ln. 5-6; p. 6, ¶ [0019], ln. 7-9);

a tubular string (Figs. 1-6:40; Figs. 7B-7C:150) adapted to produce fluid from the perforation interval via one port in the sealing mechanism (Spec., p. 4, ¶ [0016], ln. 9-11; p. 6, ¶ [0019], ln. 8-9); and

an injection tool (Figs. 1-6:60; Figs. 7B-7C:100) separate from and not in contact with the tubular string to inject gas into the well at or below the perforation interval via the other port in the sealing mechanism, the injection tool having plural gas lift valves (Figs. 1-6:62A, 62B, 62C; Figs. 7B-7C:102) for delivering the injected gas into the well at a location below the sealing mechanism and at or below the perforation interval, wherein the injection tool is to receive a flow of gas and the plural gas lift valves are configured to be opened by pressure applied by the flow of gas to inject gas into the well, wherein the gas is injected through each of the gas lift valves that is opened to assist production of fluid from the well (Spec., p. 3, ¶ [0014], ln. 1 - p. 6, ¶ [0019], ln. 11).

Independent claim 13 recites a method for unloading an accumulated liquid from a well having a perforation interval proximate a gas-bearing formation, wherein hydrostatic pressure of the accumulated liquid exceeds pressure of produced gas, the method comprising:

sealing the formation (Figs. 1-6:14) in the well at a location above the perforation interval (Spec., p. 4, ¶ [0016], ln. 5-7; p. 6, ¶ [0019], ln. 7-9);

providing a tubing string (Figs. 1-6:40; Figs. 7B-7C:150) for establishing communication between surface and a point below the sealing location (Spec., p. 4, ¶ [0016], ln. 9-11; p. 6, ¶ [0019], ln. 8-9);

providing a gas injection tool (Figs. 1-6:60; Figs. 7B-7C:100) having a plurality of gas lift valves (Figs. 1-6:62A, 62B, 62C; Figs. 7B-7C:102) for establishing communication between a point above the sealing location and the perforation interval below the sealing location, wherein the gas injection tool is separate from and not in contact with the tubing string (Spec., p. 3, ¶ [0014], ln. 1 - p. 4, ¶ [0016], ln. 19; p. 6, ¶ [0019], ln. 1-11);

delivering gas to the gas injection tool (Figs. 1-6:60; Figs. 7B-7C:100), wherein the delivered gas applies pressure to cause the plurality of gas lift valves to open (Spec., p. 5, ¶ [0017], ln. 1-5);

delivering gas into the well at or below the perforation interval via the plurality of gas lift valves (Figs. 1-6:62A, 62B, 62C; Figs. 7B-7C:102) when opened to decrease the hydrostatic pressure of the accumulated liquid to a level sufficient to permit gas to be produced from the formation (Spec., p. 5, ¶ [0017], ln. 5-17; p. 6, ¶ [0019], ln. 9-11); and

removing the accumulated liquid and gas from the well via the tubing string (Figs. 1-6:40; Figs. 7B-7C:150; Spec., p. 5, ¶ [0017], ln. 1-5).

Independent claim 14 recites a gas lift system for use in producing a wellbore having perforations proximate a gas-bearing formation, the system comprising:

a dual-port packer (Figs. 5-6:30) adapted to seal the wellbore at a location above the perforations, the dual-port packer having two ports therein (Spec., p. 4, ¶ [0016], ln. 5-6);

a tubing string (Figs. 5-6:40) adapted to deliver gas from the perforations proximate the formation via one port in the packer to a surface location, wherein the tubing string has a valve (Figs. 5-6:42A or 42B) that is actuated in response to gas pressure in a well annulus outside the tubing string exceeding a predetermined level (Spec., p. 5, ¶ [0017], ln. 20-33); and

an injection tool (Figs. 5-6:60) separate from and not in contact with the tubing string and adapted to inject gas from a surface location into the wellbore at or below the perforations via the other port in the packer, the injection tool having a plurality of gas lift valves (Figs. 5-6:62A, 62B, 62C) for delivering the injected gas into the wellbore at a location below the packer, wherein the injection tool is to receive a flow of gas and the plural gas lift valves are configured to be opened by pressure applied by the flow of gas to inject gas into the well, wherein the gas is injected through each of the gas lift valves that is opened to assist production of fluid from the wellbore (Spec., p. 3, ¶ [0014], ln. 1 - p. 5, ¶ [0017], ln. 33).

Independent claim 22 recites a method for producing through a wellbore having a perforation interval proximate a formation, comprising:

injecting gas into the wellbore (Figs. 1-6:10; Fig. 7A:110) at or below the perforation interval, wherein injecting the gas comprises injecting the gas using an injecting tool having plural gas lift valves (Figs. 1-6:62A, 62B, 62C; Figs. 7B-7C:102; Spec., p. 3, ¶ [0014], ln. 1 - p. 6, ¶ [0019], ln. 11);

actuating a first one (Figs. 1-6:62A, 62B, 62C; Figs. 7B-7C:102) of the gas lift valves when the injected gas reaches a first pressure (Spec., p. 5, ¶ [0017], ln. 5-19);

actuating a second one of the gas lift valves (Figs. 1-6:62A, 62B, 62C; Figs. 7B-7C:102) when the injected gas reaches a second, greater pressure (Spec., p. 5, ¶ [0017], ln. 5-19); and

producing fluids from the wellbore using a tubing string (Figs. 1-6:40; Figs. 7B-7C:150) that is separate from and not in contact with the injecting tool such that the gas lift valves are separate from the tubing string (Spec., p. 4, ¶ [0016], ln. 9-11; p. 6, ¶ [0019], ln. 8-9).

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

- A. Claims 1, 2, 4-11, 13-15, and 24-30 were rejected under 35 U.S.C. § 103(a) as unpatentable over McCulloch (U.S. Patent No. 2,894,587) in view of Maloney (U.S. Patent No. 4,708,595).**
- B. Claims 16, 18-20, 22, 23, and 31 were rejected under 35 U.S.C. § 103(a) as unpatentable over McCulloch in view of Maloney and further in view of Wellington (U.S. Patent No. 5,031,697).**

## **VII. ARGUMENT**

The claims do not stand or fall together. Instead, Appellant presents separate arguments for various independent and dependent claims. Each of these arguments is separately argued below and presented with separate headings and sub-headings as required by 37 C.F.R. § 41.37(c)(1)(vii).

- A. Claims 1, 2, 4-11, 13-15, and 24-30 were rejected under 35 U.S.C. § 103(a) as unpatentable over McCulloch (U.S. Patent No. 2,894,587) in view of Maloney (U.S. Patent No. 4,708,595).**

- 1. Claims 1, 2, 4-6, 24, 26.**

It is respectfully submitted that the obviousness rejection of claim 1 over McCulloch and Maloney is erroneous.

To make a determination under 35 U.S.C. § 103, several basic factual inquiries must be performed, including determining the scope and content of the prior art, and ascertaining the differences between the prior art and the claims at issue. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459 (1965). Moreover, as held by the U.S. Supreme Court, it is important to identify a reason that would have prompted a person of ordinary skill in the art to combine reference teachings in the manner that the claimed invention does. *KSR International Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1741, 82 U.S.P.Q.2d 1385 (2007).

The Examiner conceded that McCulloch fails to disclose a plurality of gas lift valves attached to a tubular member, where the tubular member is part of a gas injection tool that is separate from and not in contact with a tubing string for removing fluid from the wellbore. 3/10/2010 Office Action at 4. Instead, the Examiner cited Maloney as purportedly disclosing the plurality of gas lift valves recited in claim 1. *Id.* Specifically, the Examiner pointed to the valves 30 depicted in the figure of Maloney.

The valves 30 in Maloney are unloading valves. Maloney specifically teaches that these unloading valves 30 **are part of the production string 21**. Maloney, 3:28-32 (“The production string 21 further includes unloading valves 36 above the packer 18 and unloading valves 30 below the packer.”). The teachings of Maloney thus contradict the subject matter of claim 1, which specifically specifies that the gas lift valves are attached to the tubular member of a gas injection tool that is **separate from and not in contact with a tubing string** for removing fluid from the wellbore.

McCulloch discloses a tubular extension member 40 (*see* Figs. 1 and 2 of McCulloch) that has an opening at its bottom end, but no gas lift valves. On the other hand, Maloney discloses unloading valves 30 that are part of the main production string 21, and provides no hint whatsoever regarding providing gas lift valves attached to a tubular member that is separate from and not in contact with the main production string 21 for removing fluid from the wellbore.

The Examiner argued that “[i]t would have been obvious to one of ordinary skill in the art to include multiple orifices with gas lift valves on the injection tool and production string of McCulloch, as taught by Maloney et al., in order to provide additional production assist means since combining prior art elements according to known techniques to yield predictable results is considered obvious to one of ordinary skill.” 03/10/2010 Office Action at 4. The problem with

this allegation is that neither McCulloch nor Maloney provides any hint of providing gas lift valves on an injection tool that is **separate from an not in contact with a tubing string** for removing fluid from the wellbore. Specifically, Maloney teaches unloading valves 30 that are **part of the production string**. On the other hand, McCulloch discloses a tubular extension member 40 that has an opening at its bottom end, but **no** gas lift valves. Therefore, it is clear that a person of ordinary skill in the art looking to the teachings of McCulloch and Maloney would not have been led to providing gas lift valves attached to the tubular member of a gas injection tool that is separate from and not in contact with a tubing string for removing fluid from the wellbore. The Examiner's allegation that it would have been obvious to provide gas lift valves on such an injection tool is based on pure conjecture (and impermissible hindsight) by the Examiner, and not based on any objective evidence of record.

The Advisory Action mailed on May 18, 2010, argued that the valves 30 of Maloney are gas lift valves. However, the Examiner did not address Appellant's arguments that the unloading valves 30 of Maloney are **part of the production string 21**, and therefore cannot be attached to the tubular member of a gas injection tool that is **separate from an not in contact with a tubing string** for removing fluid from the wellbore.

In view of the foregoing, it is clear that even if McCulloch and Maloney could be hypothetically combined, the hypothetical combination of these references would not have disclosed or hinted at all elements of claim 1.

In addition, no reason existed that would have prompted a person of ordinary skill in the art to combine the teaching of McCulloch and Maloney to achieve the subject matter of claim 1. In fact, specific reasons exist that would have led a person of ordinary skill in the art away from the proposed combination.



First, McCulloch specifically discloses valves 44 and 45 provided at the upper end of the tubular extension member 40. McCulloch recognizes that no valves can be provided at the lower portion of the tubular extension member 40 because such lower portion of the tubular extension member 40 has to be provided through a passageway 30 of a packing member 23 (*see* Figure 1 of McCulloch). Significantly, note that the tubular extension member 40 is designed to be sealingly engaged inside the passageway 30 (*see* sealing element 41 in Figure 2 of McCulloch), and is also designed to be retrievable by a fishing tool 71 (*see* Figure 3 of McCulloch). McCulloch, 3:26-32. If gas lift valves were to be incorporated into the lower portion of the tubular extension member 40 of McCulloch, as suggested by the Examiner, then that would render it impossible for the tubular extension member 40 to pass through the passageway 30 of the packing member 23, since provision of such gas lift valves would increase the outer diameter of the tubular extension member 40. Therefore, the proposed modification of McCulloch made by the Examiner would render the McCulloch apparatus inoperative for its intended purpose (namely provision of a tubular extension member that is sealingly engageable inside the passageway 30 of the packing member 23, and that is retrievable by passing through such passageway 30). This is a strong indication that a person of ordinary skill in the art would not have been prompted to make the modification of McCulloch based on the teachings of Maloney as proposed by the Examiner.

The Advisory Action argued that Appellant's arguments as stated above are not persuasive "because the test of obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference, but rather the test is what the combined teachings would suggest to those of ordinary skill in the art." Appellant did not argue whether or not the features of the secondary reference can be bodily incorporated into the

structure of the primary reference. Rather, Appellant pointed out that incorporating the gas lift valves into McCulloch as suggested by the Examiner would render the McCulloch apparatus **inoperative for its intended purpose**. This is an indication that a person of ordinary skill in the art would not have been prompted to combine the teachings to achieve the claimed subject matter.

Second, Maloney specifically teaches that its sidestring 28 is in contact with the production string 21, and that the unloading valves 30 are part of the production string 21. A person of ordinary skill in the art would have been led by Maloney to incorporate unloading valves 30 into the main tubing 22 of McCulloch (*see* Fig. 1 of McCulloch), rather than providing unloading valves on the tubular extension member 40.

In view of the foregoing, a person of ordinary skill in the art would have been led away from providing gas lift valves on a tubular member that is part of a gas injection tool that is separate from and not in contact with a tubing string for removing fluid from the wellbore. Thus, no reason existed that would have prompted a person of ordinary skill in the art to combine the teachings of McCulloch and Maloney.

Therefore, it is respectfully submitted that claim 1 and its dependent claims are non-obvious over Maloney and McCulloch.

Reversal of the final rejection of the above claims is respectfully requested.

## **2. Claim 15.**

Claim 15 depends from claim 1 and is therefore allowable for at least the same reasons as claim 1. Moreover, claim 15 further recites:

wherein the **gas lift valves are arranged on a side of the tubular member [of the gas injection tool]** to enable injected gas to pass in a radial direction of the tubular member into the wellbore through the corresponding orifices.

Neither McCulloch nor Maloney provides any hint of gas lift valves that are arranged on a side of the tubular member that is part of the injection tool that is separate from and not in contact with a tubing string for removing fluid from the wellbore. In McCulloch, no gas lift valves are provided on the tubing extension 40, while in Maloney, the unloading valves 30 are provided as part of the main production string 21, thereby contradicting the express language of claim 15.

Claim 15 is therefore further allowable for the foregoing reasons.

Reversal of the final rejection of the above claim is respectfully requested.

### **3. Claim 25.**

Claim 25 depends from claim 1 and is therefore allowable for at least the same reasons as claim 1. Moreover, claim 25 further recites:

wherein the gas lift valves provided as part of the tubular member of the gas injection tool allows **the gas lift valves to be separate from the tubing string**.

McCulloch discloses a tubular extension member 40 (*see* Figs. 1 and 2 of McCulloch) that has an opening at its bottom end, but no gas lift valves. On the other hand, Maloney discloses unloading valves 30 that are part of the main production string 21, and therefore, does not provide any hint of gas lift valves that are **separate from the tubing string** for removing fluid from the wellbore, as recited in claim 25. Therefore, claim 25 is further allowable for the foregoing reasons.

Reversal of the final rejection of the above claim is respectfully requested.

### **4. Claims 7-11, 14, 28, 30.**

Independent claim 7 recites a gas lift system for use in producing a well having a perforation interval, the system comprising:

a sealing mechanism adapted to seal the well at a location above the perforation interval, the sealing mechanism having two ports therein;

a tubular string adapted to produce fluid from the perforation interval via one port in the sealing mechanism; and

an injection tool **separate from and not in contact with the tubular string** to inject gas into the well at or below the perforation interval via the other port in the sealing mechanism, the **injection tool having plural gas lift valves** for delivering the injected gas into the well at a location below the sealing mechanism and at or below the perforation interval, wherein the injection tool is to receive a flow of gas and the plural gas lift valves are configured to be opened by pressure applied by the flow of gas to inject gas into the well, wherein the gas is injected through each of the gas lift valves that is opened to assist production of fluid from the well.

For reasons similar to those stated above with respect to claim 1, it is clear that the hypothetical combination of McCulloch and Maloney does not provide any hint of an **injection tool separate from an not in contact with the tubular string** (adapted to produce fluid from the perforation interval) to inject gas into the well at or below the perforation interval, where the **injection tool** (that is separate from and not in contact with the tubular string) **has plural gas lift valves** for delivering the injected gas into the well at a location below the sealing mechanism and at or below the perforation interval. As noted above in connection with claim 1, McCulloch discloses a tubular extension member 40 without any gas lift valves, while Maloney discloses unloading valves 30 that are **part of the main production tubing string**, and provides no hint of providing gas lift valves on an injection tool that is separate from and not in contact with the main production string 21.

Moreover, for reasons stated above with respect to claim 1, no reason existed that would have prompted a person of ordinary skill in the art to combine the teachings of McCulloch and Maloney to achieve this claimed subject matter.

Therefore, the obviousness rejection of claim 7 and its dependent claims is clearly erroneous.

Independent claim 14 and its dependent claim are similarly allowable over McCulloch and Maloney.

Reversal of the final rejection of the above claims is respectfully requested.

**5. Claim 27.**

Claim 27 depends from claim 7 and is therefore allowable for at least the same reasons as claim 7. Moreover, claim 27 is further allowable for reasons similar to those stated above with respect to claim 25.

Reversal of the final rejection of the above claim is respectfully requested.

**6. Claim 13.**

Independent claim 13 recites a method for unloading an accumulated liquid from a well having a perforation interval approximate a gas-bearing formation, where hydrostatic pressure of the accumulated liquid exceeds pressure of produced gas, the method comprising:

- sealing the formation in the well at a location above the perforation interval;
- providing a tubing string for establishing communication between surface and a point below the sealing location;
- providing a **gas injection tool having a plurality of gas lift valves** for establishing communication between a point above the sealing location and the perforation interval below the sealing location, wherein **the gas injection tool is separate from and not in contact with the tubing string**;
- delivering gas to the gas injection tool, wherein the delivered gas applies pressure to cause the plurality of gas lift valves to open;
- delivering gas into the well at or below the perforation interval via the plurality of gas lift valves when opened to decrease the hydrostatic pressure of the accumulated liquid to a level sufficient to permit gas to be produced from the formation; and
- removing the accumulated liquid and gas from the well via the tubing string.

Claim 13 is non-obvious over McCulloch and Maloney for similar reasons as stated above with respect to claim 1.

Reversal of the final rejection of the above claim is respectfully requested.

**7. Claim 29.**

Claim 29 depends from claim 13 and is allowable for at least the same reasons as claim 13. Moreover, claim 29 is further allowable for similar reasons as stated above with respect to claim 25.

Reversal of the final rejection of the above claim is respectfully requested.

**B. Claims 16, 18-20, 22, 23, and 31 were rejected under 35 U.S.C. § 103(a) as unpatentable over McCulloch in view of Maloney and further in view of Wellington (U.S. Patent No. 5,031,697).**

**1. Claims 22, 23, 31.**

Independent claim 22 was rejected as purportedly obvious over McCulloch in view of Maloney and Wellington. The rejection of claim 22 over these references is defective based on at least the mis-application of McCulloch and Maloney to subject matter of claim 22 similar to the subject matter of claim 1. Claim 22 recites producing fluids from a wellbore using a tubing string that is separate from and not in contact with the injecting tool, where the injecting tool has plural gas lift valves. As discussed above in connection with claim 1, Maloney would have led a person of ordinary skill in the art to provide unloading valves 30 in the main tubing 22 of McCulloch, rather than on the tubular extension member 40, as alleged by the Examiner. Note that Wellington, the third reference, was cited by the Examiner as purportedly disclosing operating valves at different pressures. Wellington does not provide any hint of incorporating gas lift valves into an injecting tool that is separate from and not in contact with a tubing string that produces fluids from the wellbore. Thus, it is clear that even if McCulloch, Maloney, and

Wellington could be hypothetically combined, the hypothetical combination of the references would not have led to the claimed subject matter.

Moreover, for reasons similar to those stated above with respect to claim 1, no reason existed that would have prompted a person of ordinary skill in the art to combine the teaching of Maloney and McCulloch. Therefore, no reason existed to combine the teachings of Maloney, McCulloch, and Wellington to achieve the subject matter of claim 22.

Claim 22 and its dependent claims are therefore non-obvious over McCulloch, Maloney, and Wellington.

Reversal of the final rejection of the above claims is respectfully requested.

## **2. Claims 16, 18-20.**

In view of the allowability of base claims 1 and 7 over McCulloch and Maloney, the obviousness rejection of the foregoing dependent claims over McCulloch, Maloney, and Wellington has been overcome.

Reversal of the final rejection of the above claims is respectfully requested.

### CONCLUSION

In view of the foregoing, reversal of all final rejections and allowance of all pending claims is respectfully requested.

Respectfully submitted,

Date: August 10, 2010

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### **VIII. APPENDIX OF APPEALED CLAIMS**

Claims 3, 12, 17, and 21 have been cancelled.

The claims on appeal are:

- 1           1.       A gas injection tool, comprising:  
2               a tubular member defining an axial bore therethrough, the axial bore adapted to deliver a  
3 gas into a wellbore proximate a perforation interval via orifices, wherein the gas injection tool is  
4 separate from and not in contact with a tubing string for removing fluid from the wellbore; and  
5               a plurality of gas lift valves attached to the tubular member, the gas lift valves adapted to  
6 regulate communication, via the corresponding orifices, from the axial bore of the tubular  
7 member to the wellbore at or below the perforation interval, and wherein the gas lift valves are  
8 configured to be opened in response to application of pressure applied by a flow of gas injected  
9 into the axial bore of the tubular member, wherein the gas is injected through each of the gas lift  
10 valves that is opened to assist production of fluid from the wellbore.
- 1           2.       The gas injection tool of claim 1, wherein the tubular member is configured to  
2 engage a sealing mechanism that seals the wellbore above the perforation interval.
- 1           4.       The gas injection tool of claim 1, wherein the tubular member is adapted to inject  
2 a gas proximate the perforation interval of a gas-bearing well.
- 1           5.       The gas injection tool of claim 1, wherein the tubular member is adapted to inject  
2 a gas proximate the perforation interval of an oil-bearing well.
- 1           6.       The gas injection tool of claim 1, further comprising a retrieving element attached  
2 to the tubular member.

1           7.       A gas lift system for use in producing a well having a perforation interval, the  
2 system comprising:  
3           a sealing mechanism adapted to seal the well at a location above the perforation interval,  
4 the sealing mechanism having two ports therein;  
5           a tubular string adapted to produce fluid from the perforation interval via one port in the  
6 sealing mechanism; and  
7           an injection tool separate from and not in contact with the tubular string to inject gas into  
8 the well at or below the perforation interval via the other port in the sealing mechanism, the  
9 injection tool having plural gas lift valves for delivering the injected gas into the well at a  
10 location below the sealing mechanism and at or below the perforation interval, wherein the  
11 injection tool is to receive a flow of gas and the plural gas lift valves are configured to be opened  
12 by pressure applied by the flow of gas to inject gas into the well, wherein the gas is injected  
13 through each of the gas lift valves that is opened to assist production of fluid from the well.

1           8.       The gas lift system of claim 7, wherein the tubular string comprises one or more  
2 gas lift valves for injecting a gas into the well at a location above the sealing mechanism.

1           9.       The gas lift system of claim 7, wherein the sealing mechanism is a dual-port  
2 packer.

1           10.      The gas lift system of claim 7, wherein the well is a gas-bearing well.

1           11.      The gas lift system of claim 7, wherein the well is an oil-bearing well.

1           13.     A method for unloading an accumulated liquid from a well having a perforation  
2 interval proximate a gas-bearing formation, wherein hydrostatic pressure of the accumulated  
3 liquid exceeds pressure of produced gas, the method comprising:  
4           sealing the formation in the well at a location above the perforation interval;  
5           providing a tubing string for establishing communication between surface and a point  
6 below the sealing location;  
7           providing a gas injection tool having a plurality of gas lift valves for establishing  
8 communication between a point above the sealing location and the perforation interval below the  
9 sealing location, wherein the gas injection tool is separate from and not in contact with the tubing  
10 string;  
11          delivering gas to the gas injection tool, wherein the delivered gas applies pressure to  
12 cause the plurality of gas lift valves to open;  
13          delivering gas into the well at or below the perforation interval via the plurality of gas lift  
14 valves when opened to decrease the hydrostatic pressure of the accumulated liquid to a level  
15 sufficient to permit gas to be produced from the formation; and  
16          removing the accumulated liquid and gas from the well via the tubing string.

1           14.     A gas lift system for use in producing a wellbore having perforations proximate a  
2 gas-bearing formation, the system comprising:

3           a dual-port packer adapted to seal the wellbore at a location above the perforations, the  
4 dual-port packer having two ports therein;

5           a tubing string adapted to deliver gas from the perforations proximate the formation via  
6 one port in the packer to a surface location, wherein the tubing string has a valve that is actuated  
7 in response to gas pressure in a well annulus outside the tubing string exceeding a predetermined  
8 level; and

9           an injection tool separate from and not in contact with the tubing string and adapted to  
10 inject gas from a surface location into the wellbore at or below the perforations via the other port  
11 in the packer, the injection tool having a plurality of gas lift valves for delivering the injected gas  
12 into the wellbore at a location below the packer, wherein the injection tool is to receive a flow of  
13 gas and the plural gas lift valves are configured to be opened by pressure applied by the flow of  
14 gas to inject gas into the well, wherein the gas is injected through each of the gas lift valves that  
15 is opened to assist production of fluid from the wellbore.

1           15.     The gas injection apparatus of claim 1, wherein the gas lift valves are arranged on  
2 a side of the tubular member to enable injected gas to pass in a radial direction of the tubular  
3 member into the wellbore through the corresponding orifices.

1           16.     The gas injection apparatus of claim 1, wherein a first of the gas lift valves is  
2 actuated in response to the gas reaching a first gas pressure, and a second of the gas lift valves is  
3 actuated in response to the gas reaching a second, different gas pressure.

1           18.     The gas injection apparatus of claim 16, wherein the first gas lift valve is closed  
2 once the delivered gas reaches the second pressure.

1           19.     The gas lift system of claim 7, wherein a first of the plural gas lift valves is  
2 actuatable in response to the gas reaching a first gas pressure, and a second of the plural gas lift  
3 valves is actuatable in response to the gas reaching a second, different gas pressure.

1           20.     The gas lift system of claim 19, wherein the plural gas lift valves are configured  
2 to sequentially actuate in response to the injected gas reaching different pressures.

1           22.     A method for producing through a wellbore having a perforation interval  
2 proximate a formation, comprising:  
3           injecting gas into the wellbore at or below the perforation interval, wherein injecting the  
4 gas comprises injecting the gas using an injecting tool having plural gas lift valves;  
5           actuating a first one of the gas lift valves when the injected gas reaches a first pressure;  
6 actuating a second one of the gas lift valves when the injected gas reaches a second, greater  
7 pressure; and  
8           producing fluids from the wellbore using a tubing string that is separate from and not in  
9 contact with the injecting tool such that the gas lift valves are separate from the tubing string.

1           23.     The method of claim 22, further comprising closing the first gas lift valve when  
2 the injected gas reaches the second pressure.

1           24.     The gas injection apparatus of claim 1, wherein the plurality of gas lift valves are  
2 located at or below the perforation interval.

1           25.     The gas injection tool of claim 1, wherein the gas lift valves provided as part of  
2 the tubular member of the gas injection tool allows the gas lift valves to be separate from the  
3 tubing string.

1           26.     The gas injection tool of claim 1, wherein the gas injection tool is configured to  
2 be deployable into the wellbore separately from the tubing string.

1           27.     The gas lift system of claim 7, wherein provision of the gas lift valves on the  
2 injection tool allows the gas lift valves to be separate from the tubular string.

1           28.     The gas lift system of claim 7, wherein the injection tool is configured to be  
2 deployable into the well separately from the tubular string.

1           29.     The method of claim 13, wherein providing the gas injection tool comprises  
2     deploying the gas injection tool into the well separately from the tubing string.

1           30.     The gas lift system of claim 14, wherein the injection tool is configured to be  
2     deployable into the wellbore separately from the tubing string.

1           31.     The method of claim 22, further comprising deploying the injecting tool into the  
2     wellbore separately from the tubing string.

**IX. EVIDENCE APPENDIX**

None.

**X.     RELATED PROCEEDINGS APPENDIX**

None.